total body weight. Since adenosine is initially largely confined to the vascular space, it has been postulated that obese patients may receive excessive amounts of the vasodilator, resulting in a higher incidence of side effects and greater risk.

Methods: We studied a total of 24,258 patients (13,219 males and 11,039 females) undergoing PSI with adenosine (140 mcg/kg/per min). The population was divided into quartiles based upon body mass index [BMI; body weight (kg)/height2 (meters)].

Results: In both genders, greater BMI was associated with an increased incidence of adverse effects (AE) ($p = 0.001$). However, only minimal differences were observed in the incidence of A-V block in the four BMI quartiles for either gender. AE vs BMI:

Males	<24	24-27	27-30	>30	p
Any AE	68%	75%	79%	83%	0.001
AV Block	6%	5%	6%	6%	0.246
SOB/dyspnea	25%	30%	31%	35%	0.001

Females	<24	24-27	27-30	>30	p
Any AE	79%	85%	87%	90%	0.001
AV Block	7%	7%	8%	8%	0.015
SOB/dyspnea	30%	35%	37%	42%	0.001

Conclusion: The overall safety of PSI with adenosine is confirmed in obese patients despite an increased incidence in side effects. Nonetheless, the use of lean body mass may be advisable when calculating the vasodilator dose in the presence of severe obesity.

1077-146 Viability Impact on Prognosis (VIP): Results in 622 Patients

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Background: Beyond recovery of regional function and improvement of ejection fraction, revascularization of viable myocardium may improve long term outcome. Aim of this study was to determine the viability impact on prognosis in patients with previous myocardial infarction undergoing medical therapy or coronary revascularization.

Methods: We retrospectively analized 622 patients (mean age 60 ± 11 yrs) with angiographically documented coronary artery disease and an ejection fraction below 45% studied by Thallium-201 viability imaging, angiography and echocardiography. Dominance of tissue viability was defined as a maintained Thallium-201 uptake in more than 50% of dyssynergic segments at rest evaluated in an anatomical 11-segment model.

Results: 446 patients showed maintained viability (viable/dysfunctioning segment ratio >50%); of these patients, 218 underwent medical treatment and 228 were revascularized either by angioplasty or coronary surgery. The 2 groups did not differ with respect to known determinants of postinfarction prognosis: age, ejection fraction, number of diseased vessels and number of dyssynergic segments at rest. The 48 months survival rate was 77% for the medical and 91% for the revascularized group ($p < 0.01$). No significant differences were found between patients with dominance of scar treated medically (124 patients) or revascularized (52 patients).

Conclusions: In patients with previous infarction, Thallium-201 viability imaging in association with rest echocardiography provided an accurate evaluation of the viability/dysfunction ratio. Residual viable myocardium after myocardial infarction represents an unstable substrate for cardiac death, and revascularization in patients with a significant amount of tissue viability is associated with improved survival. On the contrary, dominance of scar did not affect outcome in patients with or without subsequent revascularization.

1077-147 Adenosine Stress Testing Can Identify Patients With a 50% Likelihood of Cardiac Events During the Subsequent Year

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Background and Methods: To determine the prognostic indicators of cardiac events in patients with known or suspected coronary artery disease undergoing adenosine stress testing, 232 patients were assessed 1 to 3 years (mean 22 months) after their study.

Results: There were 55 cardiac events: 7 cardiac deaths, 8 nonfatal myocardial infarctions (MI), 8 admissions for unstable angina, and 32 revascularizations. Univariate predictors of cardiac events were a history of nonQ MI, congestive heart failure, prior angioplasty, ≥2 mm ST segment depression (DeepSTdepr) during adenosine infusion, the number of fixed perfusion defects, the presence and number of reversible defects, the severity of perfusion defects, and transient left ventricular (LV) cavity dilation. Multivariate analysis using Cox regression identified a history of a nonQ MI and PTCA as independent historical risk factors. Among the testing related risk factors, the presence of DeepSTdepr during adenosine was the most powerful predictor of events. Other independent scan predictors were the presence of reversible defects and transient LV cavity dilation following the scan. The presence of 0, 1 or 2 of the 3 scan related factors reduced event free 1 year survival estimates from 93% to 71% to 47%.

Conclusions: Adenosine testing provides useful prognostic information in patients with known or suspected coronary disease. DeepSTdepr, reversible perfusion defects and transient LV cavity dilation associated with adenosine testing are independent predictors of future cardiac events in coronary disease patients.

1077-148 Prognostic Value of a Normal Dobutamine Stress Tc-99m Sestamibi SPECT Study

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We have previously reported that dobutamine (Dob) stress Tc-99m sestamibi (MIBI) imaging significantly underestimates ischemia in an experimental canine model. In light of these data, we hypothesized that the cardiac event rate in patients with normal Dob MIBI studies might be unexpectedly high, owing to reduced detection of mild to moderate coronary stenoses. To test this hypothesis, we determined the cardiac event rate in patients with normal ($n = 102$) or "probably normal" ($n = 54$) Dob MIBI SPECT studies from 1993 through 1996. Mean patient age was 62 years and >90% had lung disease. Follow-up averaged 24.9 months and was 96.8% complete. In patients with normal studies, there were 3 nonfatal myocardial infarctions (MI) (1.6%/yr.) and no cardiac deaths. One other patient required revascularization (0.5%/yr.). When the normal and "probably normal" groups were combined, there were 2 cardiac deaths (0.7%/yr.) and 3 MI's (1.0%/yr.). Interestingly, this patient population had a high noncardiac death rate (12 deaths, 4.0%/yr.). Thus, the event rate in patients with normal Dob MIBI studies (1.6%/yr.) is roughly twice as high as the event rate for exercise stress MIBI SPECT in our laboratory (0.8%/yr.). This could be caused by an underestimation of the presence and severity of coronary stenoses by Dob stress MIBI, although it could also reflect a higher risk patient population. A larger multicenter study is needed to better define the prognostic value of a normal Dob MIBI study.

1077-166 The Impact of Adjusting for Post-test Referral Bias on Apparent Sensitivity and Specificity of SPECT Myocardial Perfusion Imaging in Men and Women

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Background: Studies of SPECT myocardial perfusion imaging have reported high sensitivity but low specificity, especially in women. These studies did not adjust for post-test referral bias, the practice of referring many patients with a positive test but very few patients with a negative test to coronary angiography. Determining sensitivity and specificity only for the subset of a population who undergo angiography and failing to adjust for referral bias results in an increase in apparent sensitivity but decrease in apparent specificity of a noninvasive test.

Methods: Among 15,945 patients (9347 M, 6598 F, age 62 ± 12 yrs) without prior myocardial infarction or revascularization who underwent stress T1-201 or Tc-99m sestamibi imaging, 1771 underwent coronary angiography within 3 months after perfusion imaging. Sensitivity and specificity were calculated for the angiographic subgroup and the entire study population using a statistical method (Diamond method) that adjusts for referral bias.

Results:

	Overall	Men	Women
Sensitivity (apparent)	97%	97%	96%
Specificity (apparent)	13%	10%	20%
Sensitivity (adjusted for referral bias)	66%	72%	58%
Specificity (adjusted for referral bias)	73%	62%	83%

Conclusion: (1) Adjustment for post-test referral bias results in lower sensitivity but markedly higher specificity for stress myocardial perfusion imaging. (2) Specificity of SPECT myocardial perfusion imaging is actually higher in women than men. (3) The adjusted sensitivity in women (58%) is higher than the adjusted sensitivity reported for exercise echo in women (28%).